

REMARKS

Claims 1-29 remain pending in the present application and are resubmitted for further consideration by the Examiner. No claims have been added and no claims have been canceled. Applicants have carefully considered the cited references and the Examiner's comments, but believe claims 1-29 patentably distinguish over the references and are allowable in their present form. Reconsideration of the rejection is, accordingly, respectfully requested in view of the following comments.

I. 35 U.S.C. § 102, Anticipation

The Examiner has rejected claims 1-15 and 17-29 under 35 U.S.C. § 102(b) as being anticipated by Schimpe (U.S. Patent No. 4,743,083). This rejection is respectfully traversed.

Initially, it is noted that on page 2 of the Office Action, the Examiner states that claims 1-15 and 17-27 are rejected as being anticipated by Schimpe. In the body of the rejection, however, claims 28 and 29 are also rejected. Accordingly, in this Response, it is assumed that the Examiner also intended to reject claims 28 and 29 as being anticipated by Schimpe.

In rejecting the claims, the Examiner states the following:

With respect to claims 1, 3-9, 14-15, 18, 21-25, and 27, Schimpe shows in FIG. 12A a semiconductor laser device, comprising: a waveguide structure having first and second reflectors 310, one at either end of said waveguide; a first set of electrodes 314 connected to pump a first gain region portion of said waveguide structure adjacent to said first reflector; a second set of electrodes 314 connected to pump a second gain region portion of said waveguide structure adjacent to said second reflector; an outcoupling aperture 304 positioned between said first and second gain region portions on said waveguide structure to couple light out of said waveguide structure; and a reflective layer (col.5, l.49) positioned on said outcoupling structure.

Office Action dated June 8, 2004, pages 2 and 3.

Claim 1 of the present application reads as follows:

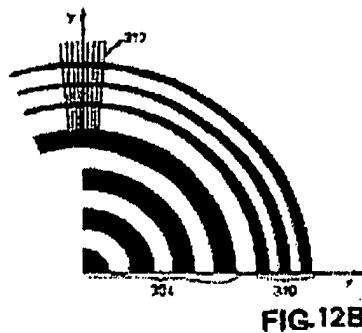
1. A surface emitting semiconducting laser device, comprising:
a waveguide having separate first order reflector gratings at both ends of said waveguide on a first surface of the laser device;
an outcoupling location positioned between said gratings on said waveguide, to couple light out of said waveguide through said first surface of the laser device.

Schimpe discloses neither “a waveguide having separate first order reflector gratings at both ends of said waveguide on a first surface of the laser device”, nor “an outcoupling location positioned between said gratings on said waveguide, to couple light out of said waveguide through said first surface of the laser device” as recited in claim 1; and, accordingly, does not anticipate claim 1.

In Column 21, lines 32-44, Schimpe states:

FIG. 12A shows a cross-section of the laser device with a resonator similar to **FIG. 1**. The resonator is divided radially into a center part 300 and an outer part 302. The center part 300 contains a circular grating 304, which diffracts power out of the waveguide mode mainly into substantially vertical beams 306 and 307, and contains a circular layer 308 capable of emission and amplification of optical radiation. The outer part 302 contains a grating 310, which provides mode selective distributed feedback, and contains an absorptive region 312 to select the resonator mode with one nodal line. The grating 304 of the center part and the grating 310 of the outer part are both in the lower cladding layer 324.

Schimpe discloses a laser device that includes a single circular grating 310 that surrounds a circular central grating 304. The circular gratings are clearly illustrated in the plan view of the laser device illustrated in **FIG. 12B** of Schimpe and reproduced as follows:



Schimpe, accordingly, does not disclose a waveguide having “separate first order reflector gratings at both ends of said waveguide” as recited in claim 1. Schimpe discloses only a single, circular grating that surrounds a circular central grating and does not disclose separate gratings at both ends of a waveguide.

In addition, because Schimpe does not disclose separate gratings at both ends of a waveguide, the reference also does not disclose “an outcoupling location positioned between said gratings on said waveguide” as recited in claim 1. In Schimpe, the central grating is surrounded by a single circular grating and is not positioned between separate gratings at both ends of a waveguide as required by claim 1.

For at least all the above reasons, Schimpe does not anticipate claim 1, and withdrawal of the rejection thereunder is respectfully requested.

Claims 2-6 depend from and further restrict claim 1, and are also not anticipated by Schimpe, at least by virtue of their dependency.

Independent claim 7 of the present application reads as follows:

7. A semiconductor laser device, comprising:
 - a waveguide structure having first and second reflectors, one at either end of said waveguide;
 - a first set of electrodes connected to pump a first gain region portion of said waveguide structure adjacent to said first reflector;
 - a second set of electrodes connected to pump a second gain region portion of said waveguide structure adjacent to said second reflector;
 - an outcoupling aperture positioned between said first and second gain region portions on said waveguide structure, to couple light out of said waveguide structure.

As discussed above with respect to claim 1, Schimpe does not disclose "a waveguide structure having first and second reflectors, one at either end of said waveguide". In addition, Schimpe does not disclose "a first set of electrodes connected to pump a first gain region portion of said waveguide structure adjacent to said first reflector" and "a second set of electrodes connected to pump a second gain region portion of said waveguide structure adjacent to said second reflector" as recited in claim 7. Schimpe, instead, discloses single circular metal contacts 314 and 316 on the lower and upper surfaces, respectively, of the laser device as clearly shown in **Figure 12A**.

Schimpe, accordingly, does not anticipate independent claim 7 for this reason as well.

Claims 8-13 depend from and further restrict claim 7, and are also not anticipated by Schimpe, at least by virtue of their dependency.

Independent claims 14, 21 and 27 contain limitations generally similar to claims 1 and 7, and are also not anticipated by Schimpe for at least the reasons discussed above with respect to claims 1 and 7. Claims 15 and 17-20 depend from and further restrict independent claim 14, claims 22-26 depend from and further restrict independent claim 21, and claims 28 and 29 depend from and further restrict claim 27; and are also not anticipated by Schimpe, at least by virtue of their dependency.

For all the above reasons, claims 1-15 and 17-29 are not anticipated by Schimpe and are believed to be allowable in their present form, and withdrawal of the rejection thereunder is respectfully requested.

Therefore, the rejection of claims 1-15 and 17-29 under 35 U.S.C. § 102 has been overcome.

Claims 1-15 and 17-29 would also not be obvious in view of Schimpe. The reference does not teach, suggest, or give any incentive to make the needed changes to achieve the presently claimed invention. Schimpe discloses a structure that is substantially different from the structure claimed in the present application, and the only suggestion to modify Schimpe to achieve the present invention is contained in the present application. Absent the Examiner pointing out some teaching or incentive in Schimpe to implement the necessary modifications, one of ordinary skill in the art would not be led

to modify Schimpe to reach the present invention when the reference is examined as a whole.

II. 35 U.S.C. § 103, Obviousness

The Examiner has rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Schimpe in view of Horimai et al. (U.S. Patent No. 5,917,798). This rejection is respectfully traversed.

Claim 16 depends from and further restricts independent claim 14, and does not provide the deficiencies discussed above with respect to the independent claims. Accordingly, claim 16 is not obvious over Schimpe in view of Horimai et al., and should be allowable in its present form.

Therefore, the rejection of claim 16 under 35 U.S.C. § 103 has been overcome.

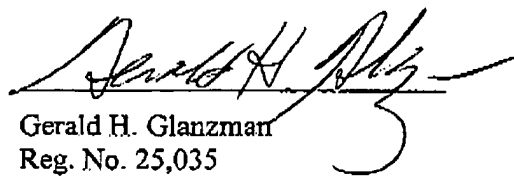
III. Conclusion

For all the above reasons, claims 1-29 are believed to patentably distinguish over the cited references and to be allowable in their present form. It is, accordingly, respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: September 8, 2004

Respectfully submitted,



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